Amendments to the Claims

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

~~first~~ cleaning a surface of the semiconductor film by using a first solution;

applying a laser beam to the cleaned surface of said semiconductor film to increase crystallinity of the semiconductor film;

~~second cleaning~~ removing an oxide film formed on a surface of the semiconductor film when applying the laser beam by using a second solution after applying the laser beam;

patterning the semiconductor film after removing the ~~second cleaning~~ oxide film; and

forming a gate insulating film on a surface of the patterned semiconductor film.

2. (Previously Presented) A method according to claim 1, wherein said first solution comprises a HF aqueous solution or an aqueous solution containing HF and H_2O_2.

3. (Original) A method according to claim 1, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

4. (Previously Presented) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

cleaning a surface of said semiconductor film;

preheating the cleaned surface of said semiconductor film to form an oxide film;

applying a laser beam to said semiconductor film through said oxide film to increase crystallinity of the semiconductor film; and

patterning the semiconductor film after applying the laser beam.

5. (Original) A method according to claim 4, wherein said cleaning is performed by using HF aqueous solution or an aqueous solution containing HF and H_2O_2.

6. (Original) A method according to claim 4, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

7. (Previously Presented) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

cleaning a surface of said semiconductor film;

preheating the cleaned surface of said semiconductor film in an atmosphere containing oxygen and nitrogen to form an oxide film;

applying a laser beam to said semiconductor film through said oxide film to increase crystallinity of the semiconductor film; and

patterning the semiconductor film after applying the laser beam.

8. (Original) A method according to claim 7, wherein said cleaning is performed by using HF aqueous solution or an aqueous solution containing HF and H_2O_2.

9. (Original) A method according to claim 7, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

10. (Previously Presented) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

cleaning a surface of said semiconductor film;

preheating the cleaned surface of said semiconductor film to form an oxide film on the cleaned surface of said semiconductor film;

applying a laser beam to said semiconductor film through said oxide film to increase crystallinity of the semiconductor film; and

patterning the semiconductor film after applying the laser beam.

11. (Original) A method according to claim 10, wherein said cleaning is performed by using HF aqueous solution or an aqueous solution containing HF and H_2O_2.

12. (Original) A method according to claim 10, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

13-15. (Canceled)

16. (Previously Presented) A method for manufacturing a semiconductor device comprising the steps of:

forming a crystalline semiconductor film over a substrate;

cleaning a surface of said crystalline semiconductor film;

preheating the cleaned surface of said crystalline semiconductor film to form an oxide film on the cleaned surface;

applying a laser beam to said crystalline semiconductor film through said oxide film to improve crystallinity of said crystalline semiconductor film; and

patterning the semiconductor film after applying the laser beam.

17. (Original) A method according to claim 16, wherein said cleaning is performed by using HF aqueous solution or an aqueous solution containing HF and H_2O_2.

18. (Original) A method according to claim 16, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

19. (Currently Amended) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

~~first~~ cleaning a surface of said semiconductor film by using a first solution;

~~forming an oxide film on the cleaned surface of said semiconductor film;~~

applying a laser beam to said semiconductor film ~~through said oxide film~~ to increase crystallinity of the semiconductor film in the air;

~~second cleaning~~ removing an oxide film formed on a surface of the semiconductor film when applying the laser beam by using a second solution after applying the laser beam;

patterning the semiconductor film after ~~the second cleaning~~ removing the oxide film; and

forming a gate insulating film on a surface of the patterned semiconductor film.

20. (Original) A method according to claim 19, wherein said laser beam is a linear laser beam.

21. (Original) A method according to claim 19, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

22. (Canceled.)

23. (Currently Amended) A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film over a substrate;

~~first~~ cleaning a surface of said semiconductor film by using HF aqueous solution or an aqueous solution containing HF and H_2O_2;

~~forming an oxide film on the cleaned surface of said semiconductor film;~~

applying a laser beam to said semiconductor film ~~through said oxide film~~ to increase crystallinity of the semiconductor film in the air;

~~second cleaning~~ removing an oxide film formed on a surface of the semiconductor film when applying the laser beam by using a second solution after applying the laser beam;

patterning the semiconductor film after ~~the second cleaning~~ removing the oxide film; and

forming a gate insulating film on a surface of the patterned ~~crystalline~~ semiconductor film.

24. (Original) A method according to claim 23, wherein said laser beam is a linear laser beam.

25. (Original) A method according to claim 23, wherein said laser beam has an energy density of 100 to 500 mJ/cm^2.

26. (Canceled)

27. (Previously Presented) A method according to claim 1, wherein applying the laser beam comprises doing so in a nitrogen atmosphere.

28. (Canceled)

29. (Previously Presented) A method according to claim 1, wherein the first and second solutions are the same.

30. (Previously Presented) A method according to claim 1, wherein the first and second solutions are different.

31. (Previously Presented) A method according to claim 4, wherein applying the laser beam comprises doing so in a nitrogen atmosphere.

32. (Previously Presented) A method according to claim 7, wherein applying the laser beam comprises doing so in a nitrogen atmosphere.

33. (Previously Presented) A method according to claim 7, wherein applying the laser beam comprises doing so in an air atmosphere.

34. (Previously Presented) A method according to claim 10, wherein applying the laser beam comprises doing so in a nitrogen atmosphere.

35. (Previously Presented) A method according to claim 16, wherein applying the laser beam comprises doing so in a nitrogen atmosphere.

36. (Previously Presented) A method according to claim 19, wherein the first and second solutions are the same.

37. (Previously Presented) A method according to claim 19, wherein the first and second solutions are different.

38. (Previously Presented) A method according to claim 23, wherein the first and second solutions are the same.

39. (Previously Presented) A method according to claim 23, wherein the first and second solutions are different.